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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WALFORD, NATALIE K

ART UNIT	PAPER NUMBER
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2879

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01/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/506,405	Applicant(s) KRAUS ET AL.	
	Examiner Natalie K. Walford	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2004 and 17 May 2007 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Amendment, filed on November 7, 2007, has been entered and acknowledged by the Examiner. Newly added claim 17-20 has been entered. Claims 1-20 are pending in the instant application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bachmann et al. (US PUB 2002/0048344).

Regarding claim 8, Bachmann discloses a method of manufacturing a foil (item 1) for a light source in figure 1, characterized by the following process steps: carbon atoms (paragraph 29) are deposited on a substrate (not shown) so as to form a diamond foil (item 1), and a portion (not shown) of the substrate is etched away such that a remaining portion of the substrate forms a frame (paragraph 29) for the diamond foil.

Regarding claim 9, Bachmann discloses a method of manufacturing a foil (item 1) for a light source in figure 1, characterized by the following process steps: carbon atoms (paragraph 29) are deposited on a substrate (not shown) so as to form a diamond foil (item 1), the diamond

foil is removed from the substrate (paragraph 29), and the diamond foil is brazed to a frame (paragraph 29).

Regarding claim 10, Bachmann discloses a method of manufacturing a foil (item 1) for a light source in figure 1, characterized by the following process steps: carbon atoms (paragraph 29) are deposited on a substrate (not shown) so as to form a diamond foil (item 1), the diamond foil is removed from the substrate (paragraph 29), and the diamond foil is adhered to a frame (paragraph 29).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wieser et al. (US 6,052,401) in view of Bachmann et al. (US PUB 2002/0048344).

Regarding claim 1, Wieser discloses a light source in figure 1 comprising a discharge vessel (item 10) which is filled with a filling gas (column 3, lines 12-31), and with an electron beam source (item 62) arranged in vacuum or in a region of low pressure (column 7, lines 42-44), which source generates electrons (item 70) and propels them through an inlet foil (item 16) into the discharge vessel, but does not expressly disclose that inlet foil comprises a diamond layer, as claimed by Applicant. Bachmann is cited to show a source in figure 2 with an inlet foil (item 101) that is made from diamond (paragraph 32). Bachmann teaches that by using a

diamond layer that the area around the diamond foil has greater rigidity and will absorb heat stresses caused from manufacturing (paragraph 31). The Examiner notes that the recitation that “for a light source” has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wieser’s invention to include the inlet foil comprises a diamond layer as suggested by Bachmann for having greater rigidity in the device.

Regarding claim 2, the combined reference of Wieser and Bachmann disclose a light source as claimed in claim 1, characterized in that the diamond layer has a thickness below 100 μm (Wieser; column 6, lines 20-22 and Bachmann; paragraph 32).

Regarding claim 3, the combined reference of Wieser and Bachmann disclose a light source as claimed in claim 1, characterized in that the diamond layer has a frame (Wieser, item 18).

Regarding claim 4, the combined reference of Wieser and Bachmann disclose a light source as claimed in claim 1, but does not expressly disclose that in that the diamond layer has a metal brazing layer, as claimed by Applicant. Bachmann discloses that the diamond layer has a brazing layer (item 102). Bachmann also discloses that the brazing layer is made from a material whose coefficient of thermal expansion is greater than that of the material of the diamond foil (paragraph 11). Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the diamond layer have a metal brazing layer, since it has

been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the purpose of using the retaining element of Bachmann for a metal brazing layer.

Regarding claim 5, the combined reference of Wieser and Bachmann disclose a light source as claimed in claim 1, but does not expressly disclose that in that the diamond layer has an organic adhesion layer, as claimed by Applicant. Bachmann discloses that the diamond layer has an adhesion layer (item 102). Bachmann also discloses that the adhesion layer is made from a material whose coefficient of thermal expansion is greater than that of the material of the diamond foil (paragraph 11). Hence, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the diamond layer have an organic adhesion layer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the purpose of using the retaining element of Bachmann for an organic adhesion layer.

Regarding claim 6, the combined reference of Wieser and Bachmann disclose a light source as claimed in claim 1, characterized in that the electron beam source comprises a thermionic electron emitter (Wieser; item 62).

Regarding claim 7, the combined reference of Wieser and Bachmann disclose a light source as claimed in claim 1, characterized in that the electron beam source comprises a field emitter (Wieser; item 62).

Regarding claim 11, Wieser discloses a gas discharge lamp comprising a discharge vessel (item 10) in figure 1, which is filled with a filling gas (column 3, lines 12-31), which vessel is adapted to produce non-coherent visible light from at least one wall in response to received

radiation produced by the gas; an inlet foil (item 16); an electron beam source (item 62) arranged in vacuum or in a region of low pressure (column 7, lines 42-44), which source generates electrons (item 70) and propels them through the inlet foil into the discharge vessel, causing the gas to produce the radiation (see FIG. 1), but does not expressly disclose that the inlet foil comprises a diamond layer, as claimed by Applicant. The Examiner notes that it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. Bachmann is cited to show a source in figure 2 with an inlet foil (item 101) that is made from diamond (paragraph 32). Bachmann teaches that by using a diamond layer that the area around the diamond foil has greater rigidity and will absorb heat stresses caused from manufacturing (paragraph 31). The Examiner notes that the recitation that "for a light source" has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wieser's invention to include the inlet foil comprises a diamond layer as suggested by Bachmann for having greater rigidity in the device.

Regarding claim 12, Wieser discloses a method of manufacturing a light source in figure 1, comprising, not necessarily in the following order, providing a discharge vessel (item 10) which is filled with a filling gas (column 3, lines 12-31), which vessel is adapted to produce non-coherent visible light from at least one wall in response to received radiation produced by the

gas, an electron beam source (item 62) arranged in vacuum or in a region of low pressure (column 7, lines 42-44), which source generates electrons (item 70) and propels them into the discharge vessel, causing the gas to produce the radiation; inserting an inlet foil (item 16) between the source and the vessel, but does not expressly disclose that the inlet foil comprises a diamond layer, as claimed by Applicant. The Examiner notes that it has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. Bachmann is cited to show a source in figure 2 with an inlet foil (item 101) that is made from diamond (paragraph 32). Bachmann teaches that by using a diamond layer that the area around the diamond foil has greater rigidity and will absorb heat stresses caused from manufacturing (paragraph 31). The Examiner notes that the recitation that “for a light source” has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Wieser’s invention to include the inlet foil comprises a diamond layer as suggested by Bachmann for having greater rigidity in the device.

Regarding claim 13, the combined reference of Wieser and Bachmann disclose the method of claim 12, wherein the light source is a gas discharge lamp (Wieser; column 10, lines 8-47).

Regarding claim 14, the combined reference of Wieser and Bachmann disclose the light source of claim 2, wherein the diamond layer has a thickness below 50 μm (Wieser; column 6, lines 20-22 and Bachmann; paragraph 32).

Regarding claim 15, the combined reference of Wieser and Bachmann disclose the light source of claim 2, wherein the diamond layer has a thickness below 20 μm (Wieser; column 6, lines 20-22 and Bachmann; paragraph 32).

Regarding claim 20, the combined reference of Wieser and Bachman disclose the light of claim 1, wherein the electrons generate radiation in the filling gas (column 3, lines 12-31), and at least one wall of the discharge vessel comprises a phosphor (see FIG. 9) that produces non-coherent visible light in response to the radiation (column 15, lines 37-67).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wieser et al. (US 6,052,401) in view of Bachmann et al. (US PUB 2002/0048344) in further view of Uemura et al. (US 6,239,547).

Regarding claim 16, the combined reference of Wieser and Bachmann disclose the light source of claim 7, but do not expressly disclose that the field emitter comprises carbon nanotubes for widening the electron beam, as claimed by Applicant. Uemura is cited to show a source in figure 4 with a field emitter that is made from carbon nanotubes (item 421). Uemura teaches that a high electric field is concentrated at the tips of the carbon nanotubes and extract electrons (column 8, lines 58-61).

Therefore, it would be obvious to one having ordinary skill in the art at the time the invention was made to modify the combined reference of Wieser and Bachmann to include the

field emitter comprises carbon nanotubes for widening the electron beam as suggested by Uemura for concentrating the electric field and extracting electrons.

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bachmann et al. (US PUB 2002/0048344) in view of Wieser et al. (US 6,052,401).

Regarding claim 17, Bachmann discloses the method of claim 8, but does not expressly disclose inserting the foil between an electron source and a discharge vessel of a gas discharge lamp that emits non-coherent visible light from at least one phosphor on at least one wall of the discharge vessel, as claimed by Applicant. Weiser is cited to show a discharge vessel in figure 9 of a gas discharge lamp (column 3, lines 12-31) with a phosphor on a wall of the vessel (column 15, lines 17-48) with an inlet foil (item 16) between an electron source (item 62) and the discharge vessel (item 10). Weiser teaches that by using a phosphor the radiation can be converted to another wavelength (column 15, lines 37-40).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Bachmann's invention to include inserting the foil between an electron source and a discharge vessel of a gas discharge lamp that emits non-coherent visible light from at least one phosphor on at least one wall of the discharge vessel as suggested by Weiser for converting the emitted radiation to another wavelength.

Regarding claim 18, Bachmann discloses the method of claim 9, but does not expressly disclose inserting the foil between an electron source and a discharge vessel of a gas discharge lamp that emits non-coherent visible light from at least one phosphor on at least one wall of the discharge vessel, as claimed by Applicant. Weiser is cited to show a discharge vessel in figure 9

of a gas discharge lamp (column 3, lines 12-31) with a phosphor on a wall of the vessel (column 15, lines 17-48) with an inlet foil (item 16) between an electron source (item 62) and the discharge vessel (item 10). Weiser teaches that by using a phosphor the radiation can be converted to another wavelength (column 15, lines 37-40).

Therefore, it would have been obvious to one having ordinary skill in the art at the art at the time the invention was made to modify Bachmann's invention to include inserting the foil between an electron source and a discharge vessel of a gas discharge lamp that emits non-coherent visible light from at least one phosphor on at least one wall of the discharge vessel as suggested by Weiser for converting the emitted radiation to another wavelength.

Regarding claim 19, Bachmann discloses the method of claim 10, but does not expressly disclose inserting the foil between an electron source and a discharge vessel of a gas discharge lamp that emits non-coherent visible light from at least one phosphor on at least one wall of the discharge vessel, as claimed by Applicant. Weiser is cited to show a discharge vessel in figure 9 of a gas discharge lamp (column 3, lines 12-31) with a phosphor on a wall of the vessel (column 15, lines 17-48) with an inlet foil (item 16) between an electron source (item 62) and the discharge vessel (item 10). Weiser teaches that by using a phosphor the radiation can be converted to another wavelength (column 15, lines 37-40).

Therefore, it would have been obvious to one having ordinary skill in the art at the art at the time the invention was made to modify Bachmann's invention to include inserting the foil between an electron source and a discharge vessel of a gas discharge lamp that emits non-coherent visible light from at least one phosphor on at least one wall of the discharge vessel as suggested by Weiser for converting the emitted radiation to another wavelength.

Response to Arguments

Applicant's arguments filed November 7, 2007 have been fully considered but they are not persuasive. The Examiner respectfully disagrees with Applicant's arguments. The Examiner notes that the foil can clearly be used in an x-ray source or a light source as shown in Bachmann or Wieser. In response to applicant's argument regarding claims 10-12, that Bachmann is not used in a light source, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The Examiner also notes that it is the method of manufacturing the foil, not the light source. The foil can be used in an x-ray source or a light source, as disclosed by Bachmann and Wieser. Hence, Applicant's limitations are met as set forth. Regarding claims 11-13, the Examiner notes that it has been held that the recitation than an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie K. Walford whose telephone number is (571)-272-6012. The examiner can normally be reached on Monday-Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or

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access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or
571-272-1000.

Nkw

Notar. Warf
1/15/08

/Sikha Roy/

1/14/08

Primary Examiner, ArtUnit 2879